

**REMARKS**

Claims 1, 7 and 11 are amended herein. Claims 1-14 remain pending in the application.

**Claims 1-14 over Nagata in view of Matsumoto**

In the Office Action, claims 1-14 were rejected under 35 U.S.C. §103(a) as allegedly being obvious over Nagata et al., U.S. Patent No. 5,974,154 (“Nagata”) in view of Matsumoto et al., U.S. Patent No. 5,381,482 (“Matsumoto”). The Applicant respectfully traverses the rejection.

Claims 1-14 respectively recite, *inter alia*, adding a choice or selecting one of a plurality of a first delay and a choice or selecting one of a plurality of a second delay for use in a 3D audio sound system to create a perceived positional sound.

Nagata appears to teach an echo effector for imparting an echo effect to an audio signal based on values of a plurality of parameters (Abstract). A dial is actuated for independently setting one or more of the parameters to desired values (Nagata, Abstract). A microprocessor dependently sets the remaining parameters to appropriate values according to the desired values (Nagata, Abstract). A first delay unit has a plurality of output terminals which output stepwise delayed signals having setpwise different delay times (Nagata, col. 4, lines 60-62). A second delay unit, connected to the first delay unit, outputs from terminals delayed signals having stepwise different delay times (Nagata, col. 5, lines 24-26). A switch group or matrix, a plurality of dials, and a command switch are used to for setting and selecting the amount of echo effect (Nagata, col. 5, lines 6-10).

The Office Action correctly acknowledged that Nagata fails to teach that the additional delays produced include one of which is a fraction of/less than a first resolution/delay (Office Action, page 3). However, the Office Action relies on Matsumoto to allegedly make up for the deficiencies in Nagata to arrive at the claimed invention. The Applicant respectfully disagrees.

Matsumoto appears to teach a sound field controller for generating apparent sound sources by adjusting amplitude and delay time of a sound signal

(Abstract). A sound signal is converted to digital form by an analog-to-digital (A/D) converter (Matsumoto, Fig. 4, item 21). Delay is introduced by a first delay element of a fixed amount, e.g., 20ms (Matsumoto, Fig. 4, item 40; col. 9, line 28). The sound is further processed by a number of finite impulse response filters (Matsumoto, Fig. 4, items 11-1, 14-1, 11 and 14). Further delay is added to the digital signal by one of a number of delay elements (Matsumoto, Fig. 4, items 41, 32-1, 33-1, 32 and 33).

Nagata teaches adding echo effect to an audio signal. A system for adding echo to an audio signal is **NOT** a 3D audio sound system. Moreover, echo does not create a perceived positional sound. Nagata fails to teach adding a choice or selecting one of a plurality of a first delay and a choice or selecting one of a plurality of a second delay for use in a 3D audio sound system to create a perceived positional sound, as respectively claimed by claims 1-14.

Matsumoto's first delay element is a fixed, predetermined delay element. Matsumoto's second delay elements all unconditionally perform a delay on a signal. Matsumoto fails to teach any type of selecting or choice of delay, much less adding a choice or selecting one of a plurality of a first delay and a choice or selecting one of a plurality of a second delay for use in a 3D audio sound system to create a perceived positional sound, as respectively claimed by claims 1-14.

Moreover, Matsumoto fixed unconditional fractional delays 32 and 33 delay the digital signal by a single amount. Matsumoto fails to teach a second delay module providing a selection or choice of additional delays, much less adding a choice or selecting one of a plurality of a first delay and a choice or selecting one of a plurality of a second delay for use in a 3D audio sound system to create a perceived positional sound, as claimed by claims 1-14.

Matsumoto fails to teach adding a choice or selecting one of a plurality of a first delay and a choice or selecting one of a plurality of a second delay for use in a 3D audio sound system to create a perceived positional sound, as respectively claimed by claims 1-14.

Neither Nagata nor Matsumoto, either alone or in combination, disclose, teach or suggest adding a choice or selecting one of a plurality of a first

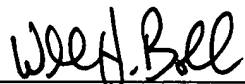
delay and a choice or selecting one of a plurality of a second delay for use in a 3D audio sound system to create a perceived positional sound, as respectively claimed by claims 1-14.

Accordingly, for at least all the above reasons, claims 1-14 are patentable over the prior art of record. It is therefore respectfully requested that the rejection be withdrawn.

**Conclusion**

All objections and rejections having been addressed, it is respectfully submitted that the subject application is in condition for allowance and a Notice to that effect is earnestly solicited.

Respectfully submitted,

  
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**Version with Markings to Show Changes Made**

1. (Twice Amended) A digital delay line for use in a 3D audio sound system, comprising:

a first delay module providing a choice of delay within a first resolution for use in said 3D audio sound system; and

a second delay module in series with said first delay module, said second delay module providing a choice of a plurality of additional fractional delays, each of said additional fractional delays being less than said first resolution;

wherein said first resolution is added to said additional fractional delays for use in said 3D audio sound system to create a perceived positional sound.

7. (Amended) A method for providing an interaural time delay in a digital 3D sound system, comprising:

selecting one of a plurality of available first time delays having a first resolution between each of said plurality of available first time delays;

additionally selecting one of a plurality of available second time delays, each of said plurality of available second time delays being less than said first resolution; and

adding said selected first time delay and said second time delay to provide a desired interaural time delay for use in said digital 3D sound system to create a perceived positional sound.

11. (Amended) Apparatus for providing an interaural time delay in a digital 3D sound system, comprising:

means for selecting one of a plurality of available first time delays having a first resolution between each of said plurality of available first time delays;

means for additionally selecting one of a plurality of available second time delays, each of said plurality of available second time delays being less than said first resolution; and

means for adding said selected first time delay and said second time delay to provide a desired interaural time delay for use in said digital 3D sound system to create a perceived positional sound.